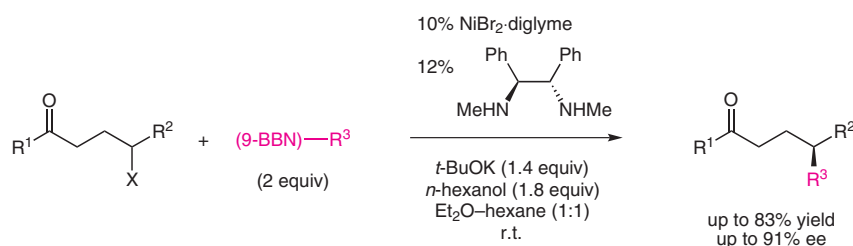


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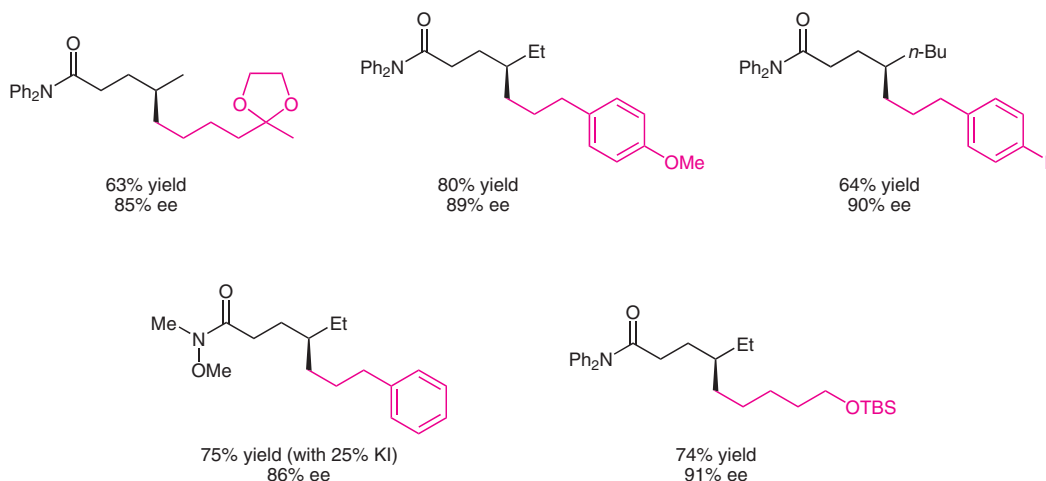
Catalytic Asymmetric  $\gamma$ -Alkylation of Carbonyl Compounds via Stereoconvergent Suzuki Cross-Couplings  
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# Catalytic Enantioselective $\gamma$ -Alkylation of Carbonyl Compounds



R<sup>1</sup> = NPh<sub>2</sub>, N(OMe)Me  
R<sup>2</sup> = Me, Et, *n*-Bu, Bn, *i*-Bu  
R<sup>3</sup> = various substituted alkyl groups  
X = Cl, Br  
BBN = 9-borabicyclo[3.3.1]nonane

## Selected examples:



**Significance:** The authors describe a new method for the catalytic enantioselective  $\gamma$ - (and  $\delta$ -)alkylation of carbonyl compounds by cross-coupling of  $\gamma$ - (and  $\delta$ -)haloamides with alkylboranes. The reaction is catalyzed by nickel and uses a commercially available chiral diamine to achieve high enantiomeric excess.

**Comment:** The reaction conditions tolerate alkyl chlorides as well as alkyl bromides as suitable electrophilic cross-coupling partners. Also, an aryl metal, a boronate ester, and a secondary alkyl metal compound are able to undergo the stereoselective cross-coupling with good enantiomeric excess.

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